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10/520,613	09/08/2005	Maurizio Catello Pennarola	027419-180	9644

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EXAMINER	
SRIRAMAN, NIKHIL	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/520,613	PENNAROLA, MAURIZIO CATELLO	
	Examiner	Art Unit	
	NIKHIL SRIRAMAN	3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-16,18,19 and 22-32* is/are pending in the application.

4a) Of the above claim(s) *26 and 30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-16,18,19,22-25 and 27-29, 31-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is a final Office Action on the merits in response to communications filed by Applicant on August 24, 2009. Applicant's communication amending claims 12-16, 18-19 and 22-24; cancelling of claims 17 and 20-21; and adding claims 25-32 has been received and entered. Thus, claims 12-16, 18-19 and 22-32 are currently pending and addressed below.

Election/Restrictions

1. Newly submitted claims 26 and 30 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 26 and 30 are directed towards sensors that are configured to detect the presence of firearms, narcotics and poisonous gases. In sharp contrast, the claims as originally filed are directed towards an avionics unit for control of an airplane's flight path and communication between the airplane and a ground control station. Thus, the search for such a nuanced sensor would require substantially divergent consideration, search and analysis regarding patentability.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 26 and 30 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Response to Arguments

2. Applicant's arguments filed on August 24, 2009 have been fully considered but they are not persuasive.

Applicant states on Page 9 of the Remarks:

> Turung, Nelson, and Schimke, taken alone or in combination, do not disclose or suggest, "during an emergency, the avionic unit is configured to externally and/or automatically disable the collision avoidance function in accordance with predefined rules, immune to an operational input from the pilot, a hijacker, or an on-board terrorist".

Applicant goes on to discuss the primary reference, Turung, and its teaching regarding re-enabling the control systems via human input. Examiner agrees that Turung does teach the option of a system where control is reestablished through human input.

However, Examiner still respectful disagrees that the most recent amendment is sufficient to make the claimed invention non-obvious in view of the teachings of Turung. This is because, while Turung teaches the option of a system where control is reestablished through human input, it also discloses the option of a system where control cannot be released to a pilot and will require a remote signal in the sentence bridging pages 5 and 6.

Therefore, for the reasons listed above in addition to the indefinite rejections cited below, Applicant's amendment is insufficient to overcome the rejections of record.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 12-16, 18-19 and 22-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 12, the last limitation recites:

> during an emergency, the avionic unit is configured to externally and/or automatically disable the collision avoidance function in accordance with predefined rules, immune to operational input from the pilot, a hijacker, or an on-board terrorist.

The “collision avoidance function" is outlined in lines 19-26, where it is specified that "if the aircraft deviates from the authorized limits, the avionic system intervenes automatically on the autopilot, immune to disabling by a pilot of the aircraft". Thus, the collision avoidance function removes control from the pilot.

It follows that disabling the “collision avoidance function” will result in the autopilot not intervening automatically and the ability of the pilot to input operational commands. However, in the context of “disabl[ing] the collision avoidance function”, the last limitation recites that “during an emergency” the avionics unit will be "immune to operational input from the pilot, a hijacker, or an onboard terrorist". This pilot operational input immunity describes exactly the opposite situation that would result from disabling the "collision avoidance function”.

Thus, the last limitation describes a situation that contradicts the previous explanation in the claim of the functions performed by the "collision avoidance function". Accordingly, it is unclear what the intended scope of this limitation and the claim is

indefinite as drafted. Independent claims 22 and 23 are also indefinite for parallel reasons.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 12-13, 25 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turung et al. (WO 03/023322 A2).

Regarding claim 12, Turung et al. disclose an avionic system for aircraft out of route management and alarm communications comprising:

at least an avionic unit, located onboard an aircraft (Page 20, 1st paragraph via "emergency navigation system"), provided with:

a memory unit configured to store predefined information relating to minimum allowed flight levels within ascending and descending spatial limit cones (Page 20, 1st paragraph via "memory device"; Also see Page 9, lines 1-15),

interfaces configured to receive real-time information from onboard systems and sending commands to an aircraft's autopilot to take over the control of the aircraft and return it to predefined flight levels or spatial positions (Page 20, 1st paragraph via "navigation controller"),

an electronic unit configured to process the received real-time information and compare the received real-time information in real time with the stored predefined information (Page 20, 1st paragraph via "microprocessor"; Also see Page 10, 1st pagragraph),

sensors for obtaining data on the aircraft onboard situation (Page 20, 1st paragraph via "flight data is measured"; Page 4, last paragraph via "sensors"),

communication system configured to transmit a first set of parameters associated with the aircraft's onboard situation in real time to a ground control station and configured to receive from the ground control station, or from another aircraft, appropriate instructions when predetermined events occur (Page 7, lines 22-30 disclose communications system receive data (appropriate instructions); Page 14, lines 1-7 disclose communications system transmit data; Fig. 2 discloses collision avoidance function is during aircraft flight, landing and take-off),

wherein the avionic unit is configured to perform a collision avoidance function, to avoid collisions during aircraft flight, landing and take-off, wherein the collision avoidance function defines

a monitoring stage, during which the avionic unit constantly compares a position of the aircraft with the stored predefined limits (Page 23, lines 29-Page 24, line 1 via "during the flight of the aircraft, the actual flight parameters are constantly monitored, and compared. . . to the predefined flight data"), and

a control stage, during which, if the aircraft deviates from the authorized limits, the avionic system intervenes automatically on the autopilot, immune to

disabling by a pilot of the aircraft, through said interfaces, to bring back the aircraft within the ascending and descending spatial limit cones (Page 25, lines 15-20), and

wherein the avionic unit is configured perform an alarm function, wherein the alarm function defines

a first, monitoring stage, during which the first set of parameters associated with the aircrafts onboard situation are stored in the memory unit and are not automatically transmitted to the ground control stations (Page 23, lines 29-Page 24, line 1 via "during the flight of the aircraft, the actual flight parameters are constantly monitored, and compared. . . to the predefined flight data"; Page 11, lines 21-29 "emergency navigation system provides one or more warnings to the pilot or authorized personnel prior to the emergency navigation system being activated. The warning allows the pilot to correct the deviation from the desired flight path, aircraft orientation, airspeed, and/or altitude prior to the emergency navigational system taking full or partial control of the aircraft." Note that Examiner construes when pilot correction occurs and the emergency navigation system does not take control, that no signal will be transmitted to a remote location, unlike the case when the system does take control as disclosed below), and

a second alarm stage which is activated during an alarm, during which a second set of parameters associated with the aircraft's onboard situation are transmitted to the ground control stations for appropriate evaluation (Page 14,

lines 1-7 via "every warning by the emergency navigation system and/or every instance the emergency navigation system takes partial or full navigation control of the aircraft, a signal is transmitted to a remote location such as, but not limited to, an airport, air traffic control location. . .") and

during an emergency, the avionic unit is configured to externally and/or automatically disable the collision avoidance function in accordance with predefined rules, immune to operational input from the pilot, a hijacker, or an on-board terrorist (Page 5, line 25 – Page 6, line 10).

Turung et al. fail to explicitly disclose that during monitoring the information is stored in the memory unit.

However, it is notoriously well known in the art to store recorded data in a memory.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the avionic control system as disclosed by Turung et al. to store recorded data in its memory so that a complete flight log would be maintained.

Regarding claim 13, Turung et al. further discloses wherein said stored predefined information relates to flight paths (Page 5, lines 1-2), world's runways (Page 23, lines 23-30), orography of the land (Page 17, lines 1-2) , obstacles and the predefined values comprise flight paths and altitudes or flight levels (Page 9, lines 11-14).

Regarding claim 25, Turung et al. further discloses wherein the stored predefined information comprises levels and spatial positions indicative of world's

minimum allowed flight limits and airports' allowed flight limits (Page 7, lines 1-12; Page 23, line 23 – Page 24, line 1).

Regarding claim 27, Turung et al. further discloses wherein the emergency includes a hijacking or a terrorist attack (Page 6, last paragraph).

Regarding claim 28, Turung et al. further discloses wherein the communication system is configured to send messages including disabling codes to a ground control station and to receive disabling codes from the ground control station (Page 5, lines 1-12).

7. Claims 14-15, 18-19, 22-24 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turung et al. (WO 03/023322 A2) in view of Nelson (2004/0079837 A1).

Regarding claim 14, Turung et al. fail to disclose the sensors comprise surveillance video cameras and miniature transmitters, wearable by the flight Crew, configured to obtain the first and the second set of parameters.

However, Nelson discloses an avionic system (abstract) where sensors comprise surveillance video cameras and miniature transmitters ([0039] and [0042]; Note that Examiner construes the disclosure of onboard telephone constitutes a wearable, miniature transmitter).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the sensors in the avionic surveillance system as disclosed by Turung et al. to incorporate video cameras and transmitters as disclose by Nelson in order to visually monitor and transmit the on-board situation.

Regarding claim 15, Turung et al. fail to disclose wherein the video cameras are configured to establish whether the video cameras have been disabled, damaged, or are malfunctioning.

However, Nelson discloses an avionic system (abstract) wherein a video cameras configured to whether the video cameras have been disabled, damaged, or are malfunctioning ([0039] via "cameras to remotely monitor" will indicate disablement, damage or malfunction when the remote party is no longer able to view).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the sensors in the avionic surveillance system as disclosed by Turung et al. to include videos configured to establish disablement as disclosed by Nelson so that one could know when the on-board situation is no longer being monitored by video means.

Regarding claim 18, Turung et al. further disclose switches located in specific points of the aircraft available to crew and passengers configured to obtain the first and second set of parameters, and a cockpit automatic locking system (Page 5, lines 8-13; Page 15, lines 1-3).

Regarding claims 19, Turung et al. further disclose an encryption system and a coding system configured to encrypt and code respectively, the signals exchanged between the aircraft and the ground control station, wherein the encrypted and coded signals are resistant to jamming and to interference with radio band communications (Page 8, lines 7-30).

Regarding claim 22, Turung et al. further disclose a ground control station configured to interface with an avionic system comprising at least an avionic device, placed onboard an aircraft, with a memory unit, electronic processing device, interfaces, sensors, and a communication system (Page 20, 1st paragraph), the ground control station comprising:

processing data received from said avionic system (Page 14, first paragraph);

a transmission-reception system (Page 14, first paragraph);

an encrypting and/or coding system (Page 8, lines 7-30); and

communications system (Page 23, lines 7-8) and

collision avoidance function and alarm means (specified above for claim 1) occurs remotely (Page 16, 1st paragraph) and further that remote locations includes ground stations (Page 14, lines 1-7 via "a remote location such as, but not limited to, an airport, air traffic control location. . .")

during an emergency, the avionic unit is configured to externally and/or automatically disable the collision avoidance function in accordance with predefined rules, immune to operational input from the pilot, a hijacker, or an on-board terrorist (Page 5, line 25 – Page 6, line 10).

Turung et al. fail to disclose that the transmission-reception system is a radio system, or that the communications system is audio-visual.

However, Nelson discloses an avionic system (abstract) that use radio systems in transmission-reception of signals and audio-visual in communications systems and a computer in a ground station ([0039]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the ground control station as disclosed by Turung et al. to include a computer, a radio system and audio-visual in its communication as is disclosed by Nelson to facilitate effective and reliable transmission and processing of data.

Neither Turung et al. nor Nelson explicitly disclose that during monitoring the information is stored in the memory unit or the use of computers in ground stations.

However, it is notoriously well known in the art to store recorded data in a memory and use computers to process data.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the avionic control system as disclosed by Turung et al. and Nelson to store the recorded data in memory and process data with a computer so that a complete flight log would be maintained and data handling would be feasible respectively.

Regarding claim 23, Turung et al. disclose a method for aircraft out of route management wherein there are provided an avionic system comprising at least an avionic unit, fitted onboard an aircraft, with a memory unit, electronic processing means, interfaces, sensors, communication system, wherein the avionic unit is able to perform a collision avoidance function and an alarm function, and a ground station, a transmission-reception system, an encrypting and/or coding system, communications system, the method comprising:

defining first data for a collision avoidance function and loading said data into the avionic unit (Page 23, lines 29-Page 24, line 1 via “during the flight of the aircraft, the actual flight parameters are constantly monitored, and compared. . . to the predefined flight data”; Page 7, lines 12-Page line 6 disclose loading of data);

defining second data for an alarm function and loading said data into the avionic unit (Page 11, lines 21-29 via “emergency navigation system provides one or more warnings to the pilot or authorized personnel prior to the emergency navigation system being activated”; Page 7, lines 12-Page line 6 disclose loading of data);

defining third data for at least one ground control station and loading said data into the station (Page 14, lines 1-7);

defining interfaces (Page 20, first paragraph via “navigation controller”) ;

defining communication channels respective properties of the communications channels (Col. 8, lines 7-30 via "coding" constitutes a mode of transmitting data or a channel and a "specific key" constitutes a property of that channel);

defining sensors, transmitters, switches, and (Page 4, last paragraph via “sensors”; transmitters via Page 14, first paragraph; switches via Page 5, lines 8-13 and Page 15, lines 1-3).

comparing the position of the aircraft constantly with predefined and stored authorized limits intervening automatically on the autopilot to take the aircraft to its spatial limit through the interfaces when the aircraft deviates from the authorized limits (Page 23, lines 1-5); and storing the situation of the aircraft onboard and not

automatically transmitting to the ground control stations (Page 20, 1st paragraph via "data that is measured and/or *recorded*." (emphasis added)).

transmitting said information generated onboard to the ground control stations for appropriate evaluation when a second alarm state is activated in cases of alarm (Page 14, lines 1-7 via “every warning by the emergency navigation system and/or every instance the emergency navigation system takes partial or full navigation control of the aircraft, a signal is transmitted to a remote location such as, but not limited to, an airport, air traffic control location. . .”; Note Examiner construes the "second alarm state” to occur after the alarm function giving the pilot the opportunity for correction elapses without correction occurring, and thus transmission to the ground station takes place).

during an emergency, the avionic unit is configured to externally and/or automatically disable the collision avoidance function in accordance with predefined rules, immune to operational input from the pilot, a hijacker, or an on-board terrorist (Page 5, line 25 – Page 6, line 10).

Turung et al. fail to explicitly disclose that the transmission-reception system is one that is radio or that the communications system is audio-visual or that the video-cameras are included.

However, Nelson discloses the radio systems in transmission-reception of radio signals, audio-visual in communications systems and video cameras ([0039] and [0023]-[0025]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the ground control station as disclosed by Turung et al. to

include operate radio waves, use audio-visual and video cameras in its sensing as disclosed by Nelson so to facilitate effective and reliable transmission and processing of data.

Neither Turung et al. nor Nelson explicitly disclose that during monitoring the information is stored in the memory unit or the use of computers in ground stations.

However, it is notoriously well known in the art to store recorded data in a memory and use computers to process data.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to modify the avionic control system as disclosed by Turung et al. and Nelson to store the recorded data in memory and process data with a computer so that a complete flight log would be maintained and data handling would be feasible respectively.

Regarding claim 24, Turung et al. further discloses wherein the processing device processes the generated information and compares the information generated onboard and in real time with data referring to predefined flight paths and allowed altitudes or flight levels, wherein the interfaces receive flight information from onboard systems and send commands to the aircraft's autopilot to take over the control of the aircraft and bring the aircraft back to predefined altitudes or flight levels or spatial positions, and wherein sensors obtain data on the situation onboard the aircraft (Page 7, lines 22-27), and

wherein the communication system and the connecting interfaces transmit the generated information relating to onboard situation in real time to ground control

stations and receive appropriate instructions from the ground control station or from another aircraft when predetermined events occur (Page 14, lines 1-7 via "every warning by the emergency navigation system and/or every instance the emergency navigation system takes partial or full navigation control of the aircraft, a signal is transmitted to a remote location such as, but not limited to, an airport, air traffic control location. . .").

Regarding claim 31, use of the apparatus as recited above for claim 27 reads on this claim.

Regarding claim 32, use of the apparatus as recited above for claim 28 reads on this claim.

8. Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Turung et al. (WO 03/023322 A2) in view of Nelson (2004/0079837 A1), and further in view of Schminke (4,860,763).

Regarding claim 16, neither Turung et al. nor Nelson disclose the sensors comprise heart rate monitors for the pilots to be connected to the avionic unit.

However, Schminke discloses it is old and well known in the art to employ heart rate monitors as sensors in the field of avionics (Col. 4, lines 49-66).

Therefore, it would have been obvious to modify the avionics control system as disclosed by Turung et al. and Nelson to monitor heart rates as disclosed by Schminke so that a non-response or over-anxious pilot could be anticipated.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NIKHIL SRIRAMAN whose telephone number is (571)270-5797. The examiner can normally be reached on Monday through Friday, 7:30am-5:00pm, with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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